AMERICAN BEE JOURNAL.

EDITED AND PUBLISHED BY SAMUEL WAGNER, WASHINGTON, D. C.

AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

VOL. IV. **NOVEMBER, 1868.** No. 5.

[For the American Bee Journal.]

Foulbrood.

Important discovery by the medical counsellor, Dr. PREUSS, of Dirschau, Prussia. Communicated to the AMERICAN BEE JOURNAL by

LINA, BARONESS OF BERLEPSCH.

This terrible scourge consists in a microscopic fungus, *Cryptococcus alveario*, and may be prevented and eradicated.

The next number of our dear *Bienenzeitung* will publish a most important discovery made by Dr. Preuss, of Dirschau. In order to show my great interest in and kind regard for the AMERICAN BEE JOURNAL, I will try to treat the subject for its columns.

Even from his childhood Dr. Preuss felt a lively interest in bees and bee-culture, and is himself in possession of an apiary these seventeen years. Nevertheless, though he paid frequent visits to bee-keepers living in the district extending from Dantzig up to Plock in Poland, he never met with foulbrood anywhere until in the year 1866.

In the valley of the Vistula people mostly use the common straw hive. The rearing of bees is rather profitable there, rape, white clover, and wild radish, (jointed charlock), furnishing immense supplies of food. But, though the old hive is still greatly in use, there are also many box hives, and many hives with movable combs, to be found in the environs of Dirschau and Dantzig. Mr. Mannow, of Gütland, a friend of Dr. Preuss, possessed still, two years ago, a splendid apiary, consisting of seventy Berlepsch hives in pavilions. Foulbrood began to show itself in these, but Mr. Mannow, though he mentioned the fact to Dr. Preuss, did not pay any attention to it—a mistake against which other bee-keepers should be emphatically cautioned. When, a short time ago, Dr. Preuss again visited his friend, he was surprised and grieved to see that one-half of the number of colonies were dead, and the rest greatly suffering from this disease. From that day he resolved to make the discovery of the source of this terrible scourge his earnest study; and he has communicated the result of his investigations to the *Bienenzeitung*, and to my husband, Baron Berlepsch.

Dr. Preuss never was a convert to the views of Molitor Mühlfeld, (*Bienenzeitung*, 1868, No. 8), who considers an ichneumon-fly to be the cause of the disease. He says he could never yet, even with the microscope, find an ichneumon-fly, its eggs or larvæ, either in the cells of the combs or in the hives themselves. The observation of Dr. Assmuss (see Von Berlepsch, "Die Biene und die Bienenzucht," 1860, page 137), that the larva of the *Phora incrassata* causes foulbrood, is likewise regarded as unfounded by Dr. Preuss.

The foulbroody substance has, as is generally known, a viscous, pappy, yeast-like appearance, and a most offensive odor.

In order to make the required microscopic examinations, it is necessary to employ a microscope with a magnifying power of at least from 200 to 400. The splendid instrument used by Dr. Preuss is by Brunner, of Paris, and he makes his observations with a power of 600. Its micrometer allows of measurements to 1-10,000 millimeter, or 1-20,000 of a line.

The next requisite is to work neatly, and with the smallest possible quantity of material. It would be best too if, instead of the light of the sun, that simply of the clear blue sky were thrown on the metallic reflector. A quiet room, unaffected by passing vehicles, and a firmly fixed table, are also required. The microscope itself must be set on a horizontal level. Most beginners put too large a quantity of material on the object-bearer. The celebrated Professor Ehrenberg, of Berlin, always cautioned his pupils against this mistake. If you take too large a quantity, you cannot possibly see anything but a chaotic mass.

Having adjusted the instrument perfectly, you dip a clean knitting needle, or a thin glass stick into a diseased cell and put a particle of the size of a grain of sand on a perfectly faultless glass plate, which has first been most carefully cleaned with a piece of soft leather. A particle of the size of a grain of millet would already be too large. This accomplished, you dip another little glass stick into freshly distilled water, or

into water collected in a clean china dish; for if the water to be used is not perfectly fresh, it will be impregnated with various organic substances, and the observations be consequently unreliable. Pump water deposits crystals, and is therefore not to be used.

Of this absolutely pure water put a drop of the size of a grain of millet on the foulbroody substance mentioned above, in order to let this diffuse itself therein; cover it with a small glass plate not thicker than a poppy leaf; and you have a preparation with which frequent and careful observations may be made. Placing it under the microscope, you will see thousands of dust-like corpuscles, which every micologist will recognize as fungi. They belong to the species *Cryptococcus* (Kützing).

Should any one of the above-mentioned preliminaries have been neglected, the fungi will not be seen separately, and of course no proper observations can be made. When the corpuscles seen are of different sizes, the larger ones are globules of fat, remains of the chrysalis, and only the smaller dust-like corpuscles are fungi.

The foulbrood fungus, which Dr. Preuss names *Cryptococcus alveario*, belongs to the smaller species of fungi. It is round, dust-like, and has a diameter of 1-500 millimeter, 1-1,095,-line. Thus 1,095 fungi find place on a Rhenish line, and on a line square, 1,095x1,095, that is, 1,199,825, or in round numbers 1,200,000 fungi. Hence a cubic line would contain 1,400,000,000,-000 fungi. One cubic inch is equal to 1,728 cubic lines, and consequently a cubic inch of foulbrood substance contains 2,488,320,000,000,-000 foulbrood fungi Now if you take into consideration, further, that a cubic inch of comb contains fifty cells, it shows that each cell contains 49,766,400,000,000, or, in round numbers, fifty billions of fungi; or if one-fifth be allowed for wax, still forty billions of fungi.

This enormous capacity of increase is the reason why these fungi are so exceedingly dangerous. It is the same with the fungi of the cholera, typhus fever, small pox, &c. In itself the foulbrood fungus is as little poisonous as any luxuriant weed—it simply supplants that which we desire should live and thrive.

The closest affinity subsists between the foulbrood fungus and the fermentation fungus, *Cryptococcus fermentum*. The latter transforms the fermentable fluids by its rankness, and secerns itself as yeast, after having consumed every particle serviceable to its own growth. Beer and wine yeast are therefore but a conglomerate of billions of microscopic fungi.

If the question regarding the substance of foulbrood is fairly stated, everything else is but its simple consequence. Of course the disease is infectious, and easily transmissible. As long as the substance lies in pap-like form sealed in the cells, it is perhaps least infectious. But when it dries up and hangs like a black crust on the sides of the cells, or falls to the bottom of the hive, billions of seed-spores are scattered. They attach themselves to the feet of the bees, get into the cells containing young brood, are carried to the flowers, and spread the disease in every direction in a thousand ways.

It is a well-known fact that, not the larva but the sealed up chrysalis is destroyed by the foulbrood. The fungus, however, is already in the larva, but in comparatively small numbers, and cannot do it harm. Some thousands of fungi are not of power sufficient to destroy. Thus the six days' life of the larva are passed; it still lives, but the germ of death is there already. The chrysalis is killed by the enormous increase of the fungi, and the latter luxuriate, even after the death of the animal, till this is entirely consumed and transformed into its own substance. The marked distinction made by Dzierzon between innoccuous and malignant foulbrood, is therefore to be understood as stating that the death of the larvæ in the former case is attributable to some other cause; but the destruction of the chrysalis in the latter is due directly to the foulbrood fungus.

As to the origin of foulbrood, we have observed that the foulbrood fungus and the fermentation fungus belong to the same species. It is known, besides, that fungi—microscopic especially—undergo some change, or pass into each other, when getting on different ground. It is therefore not improbable that *Cryptococcus fermentum* changes into *Cryptococcus alveario*, if it happens to get on, or, by feeding, into the body of the larvæ—influenced also, perhaps, by certain states of temperature or humidity.

All bee cultivators concur in the opinion that feeding fermenting honey is a principal cause of foulbrood. Well, the fermentation of honey is caused if, when in getting it, people do not pay the strictest attention to removing and excluding from it every particle of brood, whether sealed up or not. If that be neglected, the honey will contain albumen, and may consequently not safely be used for feeding. Thus it is of great importance to be very careful in feeding. The fermentation fungus is to be found in countless sporules almost everywhere in nature; therefore it is not necessary that it be introduced *en masse* by fermenting fluids. It suffices to give it congenial soil wherein to spread. Dead larvæ or chrysalids are particularly adapted thereto. Brood dieing from any other cause, would probably give rise to foulbrood, if it remain any length of time in the hive. Changing the places of hives, and causing thereby too great a loss of bees, so that the young brood can no longer be duly warmed and fed, may generate foulbrood. Artificial swarming may also cause the disease, if the number of the bees is too small in proportion to the brood, because the latter easily becomes chilled, and perishes. Dr. Preuss recommends a mode of heating hives containing new swarms, (Ableger), by means of bottles filled with hot water.

Great care is to be taken, moreover, that all dead brood, particularly if sealed up, is removed from the hive as soon as possible. It should even be buried, because the fungi luxuriating on it already would rapidly multiply in the open air. Dead bees should never be emptied out in the vicinity of an apiary—they being the richest food for the fungi. As a human corpse, if not buried, would poison the atmosphere of a whole town, and cause the deadliest epidemics, so putrifying bees might poison an entire apiary.

Supposing the disease has already taken ground the next question is, what is to be done to remove it? First of all it must not be neglected, but treated as promptly as a case of glanders in a horse. Of course every kind of food liable to fermentation is eminently dangerous and absolutely interdicted. *There is no physic to destroy the fungus of the foulbrood!* This it is important to know, because it prevents loss of time in quackery. If there is no physic available against the disease, the old maxim of Hippocrates is to be taken into favorable consideration :—"quæ medicamenta non sanant, ferrum sanat; quæ ferrum non sanat, ignis sanat." Iron ought therefore to be the first remedy resorted to. Every hive should be most carefully examined and every diseased cell cut out. If that prove fruitless, have resource promptly to fire. Do not spare your apiary; burn every comb that shows the least sign of foulbrood, for fire alone is able to destroy the dangerous fungi. Sound combs are to be transferred to clean hives; though it is not absolutely necessary to burn the infected ones. If they be washed, inside and outside, with diluted sulphuric acid—one pound to ten pounds of water—and rinsed thoroughly with boiling water, the fungi are sure to be destroyed. It would also be well to put the hives in a baker's oven, and leave them there several hours, in a degree of heat equal to that of boiling water. The same result would be attained too, by placing them for some days in a room heated to 122 degrees of Fahrenheit. The heat would penetrate every crevice and destroy the fungi.

When Dr. Preuss was a medical student in Berlin, thirty-five years ago, the Hospital of Charity there was visited, in a most alarming manner, by puerperal fever and hospital-gangrene. Lying-in women and persons suffering from wounds or abscesses sunk quickly under these attacks. There was no remedy, and every precaution was ineffectual. At last all the sick were removed, and the rooms heated for weeks to 122 degrees Farenheit. When the patients were then brought in again, the diseases had entirely disappeared. Probably some noxious fungus had been destroyed by the heat.

The ground floor of the apiary should also be frequently sprinkled with dilute sulphuric acid, and the ground spaded up. A better plan, if practicable, would be to remove the apiary to some other spot, after having thoroughly cleaned the hives. This done, Dr. Preuss thinks that infection by the bees themselves need not be apprehended. He advises therefore to kill them only in the last resort, if there is no other remedy remaining. The middle of June he considers the best time to place them into cleaned or new hives, because they would then still be able to build combs and supply themselves with honey for the ensuing winter. It ought however to be done simultaneously throughout the apiary, or the diseased stocks may again infest the sound ones. The next duty is to visit the stocks regularly, and remove every infected comb, if any be found. Then, and then only, will it be possible to eradicate the disease.

As great physicians discover the required treatment of diseases, before ascertaining their precise nature and origin, so *Dzierzon* and *Berlepsch* gave most of the rules mentioned above, without being sure of the substance of foulbrood. They advised particularly not to resort to quackery; and that counsel cannot be too emphatically impressed on the bee-keeper.

Dr. Preuss is confident that a careful observance of his prescriptions will eradicate and cure foulbrood.

Baron Berlepsch considers the discovery of Dr. Preuss one of great importance; and I accordingly tried to treat the subject in a foreign language, for the benefit of the glorious insect and all its friends and cultivators. I am proud to give the first notice of the discovery to America, hoping and trusting that my friendly attempt will be understood and appreciated.

LINA, BARONESS BERLEPSCH.

COBURG, Sept. 14, 1868.

[Communicated for the American Bee Journal].

From Italy.

My esteemed friend, Mr. Charles Dadant, of Hamilton, Illinois, has communicated to me translations of several articles selected from the AMERICAN BEE JOURNAL, which I read with great interest. In return, allow me to send some brief comments and remarks on Italian bee-culture.

I learn with much gratification, from the articles received, that Young America is striving to advance beyond other nations, in bee-culture, as well as in general progress and civilization; and we may surely ascribe a portion of this to the AMERICAN BEE JOURNAL, which by its excellent communications and selections awakens and stimulates a more active interest among bee-keepers.

I sincerely wish that as much could be said of Italy, in these respects. But, alas, bee-culture is still greatly in arrear in this country. Most bee-keepers have still no idea of the great advance made latterly in other countries, nor any conception of an improved system of bee-culture, founded on a rational mode of management. With few exceptions, they pay no attention to their bees, except during the swarming season, when the swarms are hived in gums or plain boxes, which are commonly set in some spot where, without shelter or protection, they are exposed to the scorching rays of the noonday sun, and simply consigned to the care of Providence. In autumn, the swarms of the previous season, containing the old queens, are reserved for wintering; and frequently very superior parent stocks, containing the young queens, are doomed to the brimstone pit. Then, too, it not unfrequently happens that the owner of an apiary finds many of the hives from which he expected abundant returns entirely bare of honey; and in not a few of them neither honey nor bees, nor aught besides a dark and chaotic filmy mass and black *excreta* on the bottom-board, with an array of empty cocoons in close ranks on the inner top and sides of the hive—furnishing ocular demonstration of the

fate of the colony. The owner looks on dismayed, lamenting the precariousness of bee-culture, which flourishes surprisingly one year and fails altogether in another.

But even here the dawn of a better day is approaching. Several bee-keepers' associations have already been organized, as, for instance, in Milan and Verona. These are endeavoring to introduce a rational system of bee-culture, on Dzierzon principles, and hold frequent meetings, at which instructive addresses and lectures are delivered. They also have a constant supply of movable comb hives manufactured and for sale. The bee journal, *l'Apicoltore*, published in Milan, and edited by the Marquis Balsamo-Crivelli, deserves to be particularly mentioned in this connection.

As regards climate and honey resources, Italy and the Italian cantons of Switzerland, possess all that could be desired for successful bee-culture. The season commonly commences early in the spring, and continues till late in the fall. This, with the advantage of the superior race of yellow bees, makes this region a very Eldorado for the apiarian. There is only one drawback to be named, and that is that the honey is not uniformly of good quality, most of it being inferior to that procured in more northerly countries. This results from the diversity of the prevalent pasturage. The honey gathered in the spring from meadow flowers, rape, clover, and the blossoms of fruit trees, is fine, having a clear amber color, and an aromatic flavor. Then follows an abundant supply from the blossoms of the chestnut trees, which is of an inferior quality, darker in color, and of a harsher taste. That gathered in July is finer again, being derived from meadow flowers. Finally, in August and September, there comes in an abundant supply from the buckwheat fields and the heathery wastes, which is of inferior quality and little esteemed; and therewith the season ends. Well, we cannot have all things at once. Where the sources of supply are so ample, numerous, and continuous, much of the honey may indeed be of inferior quality, yet bee-culture be a profitable business still.

The current year has been less favorable to bee-culture than any of the three preceeding. The spring was late and cold; then followed a long continued severe drouth; and now we have excessive rains. All this restricted the production of honey.

I close with a cordial greeting to all American bee-keepers.

DR. BLUMHOF.

BIASCA, CANTON TESSIN, Aug. 21, 1868.

☞Dr. Blumhof, the writer of the foregoing, as many of our readers are aware, is the originator and proprietor of an extensive establishment at Biasco, for rearing Italian queens, where the business is prosecuted systematically, with great judgment and skill.

A popular colony will survive injurious treatment, which would speedily cause the destruction of a weak one.

From England.

[For the American Bee Journal.]

Superiority of Ligurian Bees.

The clever German bee-master, the Baron von Berlepsch, states, "that he had never known a queen of the current year to send off a swarm."

The following facts prove that a queen of the current year does sometimes send off a virgin or maiden swarm, but it is a rare occurrence, and I never heard of a second swarm of English, or common black bees, sending out two virgin swarms, in this country.

In May, 1866, I sent a stock of pure Ligurian bees to a clergyman in Essex, and it threw off three swarms. The first swarm sent out only one virgin swarm; but the second swarm, with the queen of the current year, sent out two virgin swarms. So this one stock that year increased to seven.

Another stock of Ligurian bees, sent out at the same time to the neighborhood of Liverpool, also increased to seven; but in this case the old stock, in a glass observatory hive, sent out four swarms, and the first swarm sent out two virgin swarms. The old stock, after throwing off four swarms, got so crowded again with bees that they hung out in a large cluster, and it was thought they would swarm again; to prevent which a large super was put on the hive, which they nearly filled with combs and honey.

Before the introduction of the Ligurian bee into England, such an increase as two stocks of bees to fourteen in one year, all with natural swarming, was never heard of.

Another swarm, of last year, that I sold to a friend, sent out four swarms, all in May of the present year. The fourth swarm, with a queen of the current year, sent out a large virgin swarm on the 12th of July. Since then I have not heard from their owner. What a wonderful contrast this is, with the common English bees, both in this country and America, as I know several large apiaries that have not sent out a single swarm this remarkably dry summer.

WILLIAM CARR.
NEWTON HEATH,
NEAR MANCHESTER, ENGLAND.

Smoke is very offensive to bees; therefore let not their hives stand near a brickkiln, limekiln, or brewhouse, or where any long continuing smoke may beat down upon them.—PURCHAS.

In Hampshire, England, there is said to be a superstition prevalent, that bees are idle or unproductive, and unfortunate at their work, whenever there are wars.

The *hum of bees* is called *drowsy* by Shakpeare; by others it is described as *sedative* and *soothing*; and others again call it *cheerful* and *merry*.

[For the American Bee Journal.]

Fertile Workers once more.

Mr. J. N. Clarke wishes to know how I am certain that the fertile workers, referred to by me in the March number of the JOURNAL, never had been fed royal food. (See BEE JOURNAL, volume 3, page 229). I supposed the article referred to was sufficiently plain to be understood, but I will try and be more explicit. A queenless colony will rear one or more queens from any eggs or young worker larvæ found in the hive in worker comb, by enlarging the cell, or cells, changing their position, and feeding the larvæ an extra quantity, and, writers assert, a different quality of food. This food is called *royal* food; is said to be compounded and used exclusively for royalty, and never used in the hive except when the workers are feeding a queen, or queens in embryo. It is said that this food, that is, the kind of food, has an influence on the development of the several organs of the female bee. The idea advanced by the advocates of the fertile worker theory, is this, that in the distribution of this food some portion of it is given to worker larvæ in cells adjoining queen cells, thereby producing the partial development of the generative organs of such worker. By referring to the article in the March number of the JOURNAL, it will be seen that the fertile workers were taken in the month of May, from hives from which no swarms had issued since the preceding July. It was late in June when these workers became fertile, consequently, if they had been fed royal food in the vicinity of a queen's cradle, they must have been nearly or quite eleven months old when they became fertile. I had several of them, taken from several hives, and it is not at all probable that the young queens were lost after they had become fertile, and new ones reared in all of them after swarms had ceased issuing, or later than July. My experience in changing colonies of native bees to Italians, by introducing Italian queens to such colonies, is altogether against the worker bee's living to exceed nine months, under ordinary circumstances, even with the winter months included. If an Italian queen is introduced to a colony of native bees in May, June, or the fore part of July, the last of the natives will have disappeared in about ninety days. If the colony is broodless when she is introduced, they will all be gone in about seventy days after her introduction. If she is introduced as late in the season as October, perhaps a few of the black workers will be alive the first of June following, but the number will be exceedingly small, and they will very soon disappear. I might relate numerous instances to prove that such is the case, but it would be superfluous, as I think every reader of the JOURNAL, who has introduced Italian queens to stocks of black bees and watched the result, will sustain me in the above assertions. If my observations and the inferences drawn from them are correct, we must either admit that royal food is used in the hive at other times than when queens are being reared, and in that case it ceases to be exclusively royal food, or we must look elsewhere than to the royal food for a cause of fertility in workers. But it may be said that my conclusions may be incorrect, that as are in part at least guess work. For the sake of the argument, admit it; and what is the fertile worker theory but guess work? Under certain circumstances the workers in a hive will select a worker larva and change it, from what would otherwise have produced an imperfect female or worker, to a perfect female or queen. We *guess* that this change is effected, in part at least, by the quality of the food consumed by the larva. Under certain other circumstances we have fertile workers, and we *guess* that they must have been reared in the vicinity of a queen's cradle, and have received a portion of this food. Here is not only guess work, but guess work founded on guess work. Strictly speaking, it should hardly be called a theory at all, as it has more of the character of a mere hypothesis, "a proposition assumed to account for a certain phenomena, having no other evidence for its truth than that it affords an explanation of such phenomena." As before stated, we are sometimes hasty in our conclusions. A neighboring bee-keeper once told me the worst trouble he had with black drones, in Italianizing his apiary, was with those from fertile workers. He took workers from native stocks and supplied them with brood from his Italian queen. If they failed to raise a queen, fertile workers soon made their appearance. He claimed that these workers were reared in his queen rearing hive, and had been dosed with food intended for royalty. He entirely overlooked the fact that if the brood given them was pure, not only the fertile workers reared from this brood, but the drones from such workers, would also be pure and would make him no trouble whatever. Again, we will take, if you please, the Varronian theory, as given in the JOURNAL, volume 3, page 147. The Professor held that this royal food consisted in part of fertilized eggs, laid by a fertile queen; and in proof of his position he says, in substance, that a queen cannot be produced from a single egg that will ever lay eggs at all. Mr. Quinby tells us a queen may be reared without being fed eggs at all. Mr. Quinby is correct. If Professor Varro, before advancing his theory, had taken a small piece of worker comb containing young larvæ only—no eggs—and given it to a queenless and broodless colony and noted the result, his theory would not have been penned, or at least it would have been somewhat modified or changed.

My object in introducing this question was, not to debate or argue it at all, but to stimulate, excite to investigation and experimenting on the part of others; and if possible ascertain some positive fact, something aside from mere guess work, in proof of either the truth or falsity of the position assumed.

J. H. TOWNLEY.

TOMPKINS, MICH., Sept. 8, 1868.

A large prime swarm carries with it three or four pounds of honey, when leaving the parent hive.

[For the American Bee Journal.]

J. M. Price's Movable Comb, Square Frame, Double Cased Bee Hive.

MR. EDITOR:—I wish to introduce to the notice of bee-keepers a hive which I have invented and have in use, and which is not patented, but free to all. I send you a model, drawing, and description, The model is not a sample of workmanship, but a good specimen of the hive as it is actually in use. It is an exact representation of the hive in miniature. It is well proportioned inside and out. I can use it as well as my Langstroths; and as a hive for farmers' use, I think it preferable. At first glance it looks as if it would cost more and take more lumber than the Langstroth; but a hive of the dimensions I make them takes just as much lumber as a two-story Langstroth, and not more—that is, two of his standard hives, one on top of the other. The relative capacity of each is as follows: A two-story Langstroth, with twenty frames, each 16 by 8½ inches is 2,720 square inches. Mine, with sixteen frames, as per dimensions, is just 2,208 square inches; and by using two frames in summer instead of the end boards number 20, for the inside covers, 8 and 9, to rest on, the capacity is 2,638 square inches. So you see its cost, in proportion to its capacity, is not as much as that of the other. The frame, in actual use, hangs as true and just as firm.

With the use of the honey-emptying machine, the day of surplus honey boxes has passed away. My machine holds just four of my frames. I have not tried it yet, as we have had a drought here so that for seven weeks the bees hardly left their hives, and in most of them they have used up the greater portion of their honey. I am told that, in the country around here, many of the young swarms put into box hives, have starved or dwindled away to nothing. Bees are doing better now. Most of them are getting as much honey as they consume.

By setting the boards number 20, half an inch from the sides, all you have to do when you want to take out a frame is to sever the connections that bees always make between the frame and side, and take out the board. Then you have a two-inch space to move frames sideways, and so get at any frame without taking any out of the hive, as you do with other hives. That American hive, (King's), having to take out nine to get at the tenth, would be poison to me.

The hive which I now introduce to notice, fills a place so far not filled by any other hive now before the public. It is simple in all its details, and free from all humbug. It is easily made by anyone who can use the tools commonly found on a farm. It is cool in summer and warm in winter, and can in a moment be made so suit any colony, large or small. It has all the advantages claimed for any hive, and one peculiar to itself. It will bear comparison with any; and it meets the wants of settlers on our western prairies, who, to keep bees, cannot afford to build expensive winter quarters for a few colonies, but who would still like to keep a few for family use, yet dare not do it now, as it is certain death to attempt to winter them on our cold, bleak, and windy prairies. This hive is most thoroughly protected from the weather, and the interior is easily and quickly reached, to perform any operation with bees; and it may be used with or without frames. Last winter the mercury of the thermometer, placed between the packing and the inclined top of the inner hive, stood at 65°, while outside the mercury was at zero. I examined it several times a day for nearly a month. The mercury ranged from 5° degrees below to 35° above zero outside, while inside the mercury varied only one or two degrees—showing that the temperature of the inner hive did not sympathize with the outside variations.

Profitable bee-keeping depends on the safe wintering of bees; and I believe all acknowledge that if that could be done successfully on their summer stands, it would be the best way. Writers in the BEE JOURNAL and nearly all patentees are now striving for that point. This hive secures their safety more than any with which I am acquainted, and my neighbors and myself have thirty-seven of them in successful operation.

On the front entrance it is protected by the boards 1, 5, 6, 10, and the dead air spaces 18 and 19; on the rear lower side by the boards 1, 2, 3, and the dead air space 17; and on the top by the boards 2, 8, 9, 11, 13, and the dead air space 16. The space between the inner covers 8 and 9, and the top 13, is to be filled with straw, chaff, or saw dust in winter, or with rags. The space that is filled with straw in winter can be filled with boxes for surplus honey in summer; but as there is room for sixteen frames in the body of the hive, I think such boxes can be dispensed with, by occasionally removing two or three of the frames when filled and substituting empty ones for them.

Two straw cushions are to be placed, in winter, between the sides of the hive and the square movable sides, 20, of the inner hive, on which the covers, 8 and 9, of the inner hive rest, and which keeps them from touching the frames and forms the space between 14 and 8 and 9. Thus, it will be seen, it has thorough protection.

The cost of the hive, including paint, which I make myself, and nails, does not exceed two dollars. Any person wanting further information, can obtain it by enclosing to me a postage stamp or a directed stamped envelope.

DIMENSIONS OF THE HIVE.

1. Bottom of outer hive, 24 by 30 inches.
2. Back of outer hive, 24 by 24 inches.
3. Back of inner hive, 18 by 22 inches.
4. Strips for frames to rest on, 1 by ½ and 22 inches.
5. Front of inner hive, 16 by 22 inches.
6. Movable front of hive, 4 by 22 inches, with fly-hole,
7. Block, to make fly-hole large or small.
8. Cover of inner hive, 14½ by 21½ inches.
9. Cover of inner hive, 13½ by 21½ inches.
10. Movable front of hive, for winter, 24 by 8 inches.
11. Front of hive, 16 by 24 inches.

12. Edge for cover to fit around the top of hive 3½ inches wide.

13 Cover of hive, 30 by 32 inches.

14. Frames—strips cut 12 inches by ⅞ and ¾ of an inch thick.

15. Bee-feeder and waterer, for description of which see July and August numbers of AMERICAN BEE JOURNAL.

16. Dead air space, to be filled in with straw, chaff, saw dust, or rags.

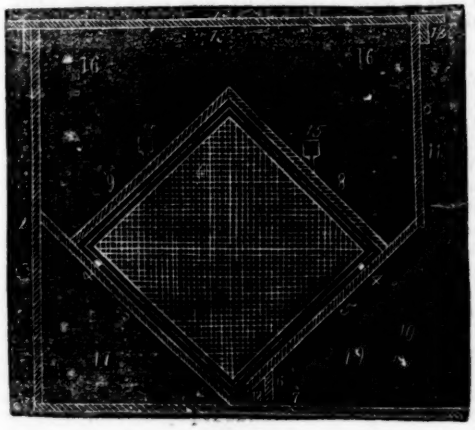
17. Dead air space.

18. Dead air space.

19. Dead air space, in winter, and covered portico in summer, forming the most complete alighting board for the bees.

20. Two square boards, movable, for inside covers to rest on, 13 by 13 inches.

21. The two sides of the outer hive, 24 by 24 inches.



By simply making number 20 15½ inches square, and the covers, 8 and 9, 13 by 17 inches wide, the hive will accommodate frames 15 inches square. Or by making number 20 6, 8, or 10 inches square, and the covers 8 and 9 in proportions to fit, any size hive holding sixteen frames can be made. Or the hive can be made to hold any number of frames of the above sizes. By simply moving the movable sides, number 20, from the sides inward, it will make the capacity of the hive from one to sixteen frames, either way, without the alteration or destruction of any part. The hive can be made to suit the taste of all in regard to size; though I think it would be best to use small frames by those who want their surplus honey in boxes;* and large ones by those who use the honey-emptying machine.† The hive can also be readily adapted to large or small colonies; and as small colonies increase in strength, the hive can be gradually enlarged to its full capacity. Again, the form of the bottom of the hive being the shape of the letter V, open at the bottom from side to side, all droppings of wax and dirt of every description falls clear of the hive, leaving the hive at all times clean and sweet. Thus there being no accumulation of dirt or pieces of wax on the bottom of the hive, there is no temptation or chance for the moth to lay her eggs—securing the hive against becoming a snug harbor for the bee-moth and worms.

To manage bees in my hive, see article, "How to ventilate, so as to save all the wax," by Mr. E. Gallup, page 8 of volume 4, AMERICAN BEE JOURNAL.

How to combine natural and artificial swarming, see article on "Pure Fertilization," page 3, volume 4, AMERICAN BEE JOURNAL, by Mr. Köhler.

JOHN M. PRICE.

BUFFALO GROVE, IOWA.

*Instead of using surplus honey boxes, bore holes in the movable sides number 20, place them towards the centre, so as to leave four frames on each side and eight in the middle for breeding purposes—thus making side surplus honey boxes.

†NOVICE, page 35, BEE JOURNAL, number 2, volume 4, says of the advantages of honey-emptying machines:—"We can take the honey out of the combs, with brood in it in all its stages, sealed or unsealed, by turning with the proper speed, without injuring the brood at all" Further, he says:—"We took out in all 163 pounds of honey up to July 13, (about one month), from one swarm." It will pay to have a honey-emptying machine for even one swarm of bees; and it will pay those who want to get the most profit from their bees, to subscribe for the AMERICAN BEE JOURNAL and read it carefully. J. M. P.

[For the American Bee Journal.]

Alsike Clover Again.

Mr. EDITOR:—There being a good deal of talk in your paper about the Alsike clover, I will give you my experience in the matter, which may be of use to some who contemplate sending for seed.

I sent to Mr. Thomas, of Brooklin, Canada West, last spring, for one peck of the seed. His price was $4,50. This, of course, was to be paid in gold. Canadian express charge, custom-house duty, $1.50 in gold. All summed up, it cost me in currency $13.18. And then it was detained at the custom-house, to go through with a system of "red tape," so that it was twenty-six days on the way, when it ought to have come in three, making it too late in the season for success, as it arrived on the 3d of May.

However, I had a piece of good fresh ground on which I thought I would risk it. But dry weather setting in soon after, and continuing through the summer, my clover is a total failure.

I let my friend Mr. George Buckles, (who is a devoted apiarian,) have part of the seed. His success is just equal to mine.

I fear the tulip tree, spoken of in the last BEE JOURNAL, is too long coming to a blooming age to suit Young America.

With us, this has been the poorest honey season ever known. J. W. HUNTER.

PIQUA, OHIO, September 6.

Strong colonies consume proportionally much less honey during the winter than weak ones.

[For the American Bee Journal.]

Non-Swarmers.

From experiments thus far, I think we may generally guard against the issue of swarms, and so construct our hives that the whole force shall be engaged in securing surplus honey in boxes, except the necessary stores for breeding and for winter's use; and then secure the issue of natural swarms when desirable.

Last season I had one Italian colony in a hive with boxes of about the aggregate capacity of 125 pounds. Its product was two swarms and 106 pounds of surplus honey. One colony of native bees gave two swarms, and with its swarms produced 97 pounds of surplus honey. Two colonies of natives, in hives of similar construction, gave no swarm, and gave 297 pounds of surplus honey. Last season I took ten hives to an apiarian a few miles distant, and had swarms of Italians placed in them. Four of the ten were of larger capacity in box room. Three of them of about 150 pounds capacity each, and one with twenty-seven boxes of nearly 200 pounds capacity. In one of these a very small swarm was placed, and only half filled its central apartment. It has now its central apartment filled; ten boxes nearly filled; and has commenced in two others; probably about 70 pounds. A second has thirteen boxes filled, except a little finishing out and capping a few of the combs; probably 100 pounds. A third has fifteen boxes about completed, and commenced in two others; probably about 120 pounds. A fourth hive is larger, receiving twenty-seven boxes, of an average capacity of nearly seven pounds. This colony has fourteen boxes full, five in which they are working, and only one empty, in which so many bees show themselves as to indicate operations soon. They have probably 150 pounds of surplus honey already.

The fifth colony was so weak in the spring, that I feared they would not survive; but they have now filled their central apartment, and just commenced in the boxes.

The old Italian colony has given two swarms. I think the four described, had they only had the box room of that, would have swarmed. Does not their contented, continued, and successful labor indicate that, with sufficient and acceptable room, they would be likely to go through the season without swarming? And may not swarming in very large hives, be sometimes the result of anticipated want of room, from the product of a very prolific queen? JASPER HAZEN.

According to the Baron of Berlepsch, three thousand drones consume as much honey as nine thousand three hundred and seventy-five workers.

Baron Ehrenfels states that when pasturage abounded and the weather was favorable, many of his strong colonies increased daily more than ten pounds each in weight.

[From The London Gardeners' Chronicle.]

Fighting Bees.

I had a hive of bees given me in the autumn of 1866, but in consequence of the severe winter by which many hives were destroyed, I had no swarm in 1867. The stock, however, grew strong, and filled a glass with honey.

This summer, however, instead of swarming, as I expected, the bees fight so savagely that the ground is covered with the slain; and this has continued for some time. I thought at first that my bees were defending themselves against robbers; but I am now convinced that this is not the case. It seems as if they took this method of thinning their over-crowded hive. Can you kindly give me any advice in the matter? I suppose there is no method to induce them to swarm peaceably, and thus cease their destructive civil war. E. C. B.

On this singular case, the *Gardeners' Chronicle* has the following remarks:—"Are you quite certain that the bees really do fight among themselves; or is it only the dragging away of deceased bees by their stronger companions? We have known many instances in which their apparent slaughter has been attributed to fighting, but have in some cases found that it proceeded from the bees being attacked by a disease analogous to dropsy. The affected ones are pulled out and cast forth by the healthy. It has also occurred under our notice, in this and other cases, that from some mysterious cause, a large proportion of the young brood was hatched out with defective wings, or was otherwise immature or malformed. We do not believe at all in the theory of their fighting for the purpose of reducing their redundant population."

Whoever intends to erect an apiary, if inexperienced, should purchase hives towards the close of the year, and such only as are full of combs and stocked with a sufficiency of honey and bees. In order to ascertain the age of hives, it should be remarked that the combs of the last year are white, while those of the former year are dark yellow. When the combs are black, the hive should be rejected, as too old and liable to inroads of vermin.—*Willich's Encyclopedia.*

Baron Berlepsch says second swarms do not send out scouts in search of suitable quarters for their permanent residence, till after they have issued and clustered.

A strong colony, when honey is plentifully gathered, can build seventy-two square inches of comb, containing four thousand cells, in the course of twenty-four hours.

Bees begin to build their combs at the inner top or ceiling of their hive, and build downwards; though they can also build upwards, when circumstances require it.

[From the (London) Gardener's Chronicle.]

Dark Honey.—Honey Dew.

I have taken off some honey comb in two supers, of a particularly dark color; the honey being nearly as black as ink, and having a peculiar taste. I am inclined to attribute this to honey dew, which was very abundant about a fortnight previously; and which being deposited principally on the lime tree leaves, that had become thoroughly ingrained with soot, was the cause of the very dark color of the honey stored in the supers.

I may add that several of my apiarian neighbors have had to complain of the same peculiarity in the color and taste of their honey taken at the same period.

On the 22d ult., however, we had a heavy thunder storm, since which the bees have been very busy, collecting large quantities of honey. One hive increased in weight to the extent of 5 lbs. 10 oz. in the course of twenty-four hours. This supply, I have no doubt, was obtained chiefly from honey dew on the sycamore trees; and I am pleased to observe that it is of a bright pale yellow color—a great contrast to that previously obtained. We have usually prided ourselves on the beautiful pale, almost transparent, color of our honey; and were both astonished and disappointed on discovering the quality and appearance of that taken by us this year.

D. D.

[For the American Bee Journal.]

Honey Substitute.

Would not the candy, made as recommended by Mr. Langstroth in his book on "*The Hive and the Honey-Bee*," page 272 of third edition, answer the desired purpose? He says the Rev. Mr. Weigel, of Silesia, recommends plain sugar-candy as a substitute for liquid honey. Four pounds of candy will, it is said, sustain a colony having scarcely any winter stores, if they are supplied with water.

To make the candy for bee-feed, add water to the sugar, and clarify the syrup with eggs. Put about a teaspoonful of cream of tartar to twenty pounds of sugar, and boil until the water is sufficiently evaporated. To know when it is done, dip your finger first into cold water, and then into the syrup. If what adheres is brittle when chewed, it is boiled enough. Pour it into shallow pans, slightly greased, and when cold, break it into pieces of suitable size. After boiling, balm or any other flavor agreeable to bees, may be put into the syrup.

To supply the water with the least trouble to yourself and bees, provide bee-feeders, made as described by me in the July and September numbers of the BEE JOURNAL. If those having bees will read Mr. Langstroth's book carefully, and make one of the bee-feeders, he will see that he has the means of safely and cheaply wintering his bees.

J. M. PRICE.

BUFFALO GROVE, IOWA.

[For the American Bee Journal.]

Cure for Bee Stings.

On the 12th of July, my youngest son, twelve years of age, was stung by a honey-bee on the side of the neck, just below the ear. In about five minutes, the ears, lips, hands, face, feet, and, in fact, every portion of his body, swelled up like a puff, all turning purple, and he complained of excessive pain about the heart. I immediately put him in a wet sheet pack, and he was relieved at once, got up in thirty minutes, and went to church. I presume that a cold-water bath would have answered as well.

I saw in the papers a case that occurred in Missouri of a man being stung by four or five bees, sitting down on the door-step, and dying in forty minutes. Here is another case. In the next county east of me, a man was stung by a single bee on the side of the neck, and died in forty minutes.

The peculiarities of my son's case were these: He is, and always has been, perfectly healthy; but the weather was extremely hot, the thermometer being up to 110° Fahrenheit in the shade. It was during this extremely hot weather that the other two cases mentioned occurred.

In consequence of those two cases, quite a number of bee-keepers have got rid of their bees, and gone out of the business in disgust. But I think they are a little too fast. Who would think of not using a horse because some one had died in consequence of being kicked? Or who would refuse to use milk or butter because some one had been gored to death by a cow?

For fear that some may not understand my remedy, I will explain. Have about three quilts or comfortables spread on a bed. Then wet a sheet in cold water, wring it, and spread it on the former. Next wet another sheet, and wring out the water that it will not drip. Spread this on the first sheet. Now strip the patient to the skin, lay him on the wet sheets on his back, and fold them about him so that they will touch every part of his body except the face. Fold up the quilts or comfortables about him in the same manner, and put wet cloths on the face and forehead. Let him lie there for thirty minutes, and he will be all right. A bath might answer as well, but sheets are almost always at hand. Any person who understands the water-cure knows what effect the wet sheets have, and also knows that it is almost instantaneous.

ELISHA GALLUP.

OSAGE, IOWA.

The Septuagint has the following eulogium on the honey-bee, Proverbs vi, 8, which is not found in the Hebrew Scriptures: "Go to the bee, and learn how diligent she is, and what a noble work she produces; whose labors kings and private men use for their health. She is desired and honored by all, and though weak in strength, yet, since she values wisdom, she prevails."—SMITH'S DICTIONARY OF THE BIBLE.

Bees dislike the smell of crabs and lobsters.

[For the American Bee Journal.]

Dividing Bees—Straight Combs.

On page 244, vol. 3, of the BEE JOURNAL, for June, 1868, are some inquiries by C. E. Thorne, directed to me. They would have been noticed before, but I have been too busy to write.

Mr. Thorne alludes to a small book that I have in preparation, on getting straight combs, and making artificial swarms without looking up the queen, there being but "one exception." He wants to know about that "one exception," whether it might not be the *rule*. I answer in the negative. Let me explain. When a man has but *one* hive of bees, then he must seek for and find the queen. If there be more than one hive on the premises, then there is no necessity of losing a moment's time in searching for the queen. There are no failures by this system of dividing bees, and every man or woman can safely practise it. The system is perfectly simple and readily understood. It may have been published, for aught I know, but I have failed to find it in detail.

On my visit to Professor Kirtland, of Cleveland, Ohio, three years ago, I gave him a practical illustration of a portion of the system, by dividing a colony of bees for him, and he writes me that he now practises it *exclusively*, and has ever since my visit as above. He regards the system as the best and simplest yet devised, and worthy the attention of all classes of bee-keepers. It is not necessary for me to state that Professor Kirtland is a bee-keeper of experience, nor that he is regarded as *authority* on this subject. These facts are well understood.

Now, a few words with regard to *straight combs*. Mr. Thorne wants to know if my way of getting straight combs is an improvement on the well-known plan of raising one end of the hive, *a la Quinby*. Well, sir, if my plan were no better than that, I would keep still, and never divulge it, for that is of very little value. I have had some little experience in the matter, and think I know whereof I affirm. I should be very glad indeed to get straight combs, and as even in thickness as a $\frac{7}{8}$-inch board, by such a simple plan, but I cannot do it. The plan I refer to, however, will do it in every case, and if I can get time to finish writing the book, I am sure that others can secure the same result. It matters not to me *how long* the frames are, about getting the combs straight. They can be had as straight and nice in frames *six feet long* as in short ones of one foot or less. The book is not yet ready for the press, nor can I state how soon it will be, for I have so many business correspondents to attend to that I find very little time to write even a brief article for the BEE JOURNAL—a periodical worthy of a generous support, not only in a literary but a *financial* point of view.

M. M. BALDRIDGE.

ST. CHARLES, ILL.

Bees require more than twice as much honey to produce an ounce of wax, when they have no pollen at command, as when well supplied therewith.

[For the American Bee Journal.]

Italian Queens, Pure Fertilization, and Bee Books.

On the 24th of June, I received three queens from Wm. W. Cary, of Coleraine, Mass, price $10. The express charges on the three was $1,60. They arrived in excellent condition, and their purity proves satisfactory. I think Mr. Cary is worthy of patronage. As he says that he had charge of the first queens imported by S. B. Parsons, in 1860, he ought to know, by this time, what good stock is, and any person ought to be satisfied with the price.

On the 5th of September, I received a queen by mail from Mr. Henry Alley, of Wenham, Mass., price $3; postage, two cents, paid by Mr. Alley. She is a good-looking queen, but as she has not laid an egg since I received her, I cannot say anything about her purity. He also sent me one of his fumigating pipes, and I introduced her by his process, and it proved satisfactory in that case. The readers of the BEE JOURNAL will recollect that his process of introducing is with tobacco smoke. What I wish to call the attention of queen-raisers to is his method of shipping by mail. The box or cage is as cheap and simple, if not cheaper, than any express box I ever saw. Shipped on the 31st of August, with about twenty workers, I received them on the 5th of September, late at night. There was one dead worker, and he looked as though he had died of old age. The rest were as fresh as if they had just been put up, with ample provision for ten or fifteen days. I think nothing of the queen's not laying, for none of my queens had laid any for ten days previous to receiving her.

On the 17th of September, Mrs. E. S. Tupper, of Brighton, Iowa, sent me the details of her method of procuring the fertilization of the queen by any drone desired, requesting me to test it, and report what I thought of it, but, as I had no drones, I could not test it this fall. Allow me to say that it is a great step in advance of any process yet made public, for if it works, (and I have not the least reason to doubt it will,) there is no possibility of losing the queen, or of having her mate with any other drones than those selected. The process is secret at present, but will be given to all those who order queens from Mrs. Tupper. The readers of the BEE JOURNAL know by this time that I am opposed to all secrets in bee-keeping; but as Mrs. Tupper has to support herself and family, (and her husband is an invalid,) she is as much entitled to some compensation for her discovery as any person that I know of; and as she has imported stock both from Italy and Germany, any person will no doubt obtain his money's worth, both in the secret and in the queen obtained.

Mr. J. R. Dodds, of New London, Iowa, has sent me the *Bee-Keeper's Guide-Book*, by E. Kretchmer, price fifty cents. It is a work well up to the times, and worth many times the price to any new beginner. In fact, Langstroth's, Quinby's, King's *Bee-Keeper's Text Book*, Kretchmer's, and the AMERICAN BEE JOURNAL, are the only works on bees that I am acquainted with that are really worth the money they cost.

OSAGE, Oct. 6, 1868. E. GALLUP.

[For the American Bee Journal.]

Various Topics.

The Sainfoin.

The sainfoin (healthy hay) is a plant very convenient for soiling cattle, or for dry fodder. All herbivorous animals are very fond of it. It is, as its name imports, very healthy food for all. Even horses can be fed on it freely, in its green or dry state, without the least danger.

In France it is generally sown on poor dry soils, where the clovers or the lucerne grass cannot thrive. It succeeds best on calcarious and sandy soils, and on stony spots. I have known it to yield more than two tons of hay to the acre, on soils so covered with small stones that hardly an atom of ground could be seen on the surface. Its rose-colored flowers, *bluish when faded*, are so pretty that they would not disparage a flower garden; and afford for three or four weeks an abundance of delicious honey for the bees. It is to sainfoin that the Gatinais honey owes its well deserved reputation in the Paris markets.

If any bee-keepers wish to try it, I would advise them to select a dry and porous soil for it, for even in France it will not last more than one or two years on rich ground not naturally well drained.

I do not doubt that, with our fine Indian summers, it would here produce a second crop ample enough to be worth cutting and curing, besides affording abundant fall pasturage for bees.

The Lindens.

Although the nurserymen's catalogues show only two varieties of the linden tribe, the one American and the other European, there are at least three American varieties known—the Tilia alba, (white lime); the Tilia Americana, (the American lime or bass-wood); and the Tilia pubescens, (the downy lime). The European varieties are:—The Tilia plataphylla, (broad-leaved lime); the Tilia microphylla, (the small-leaved lime); and the Tilia argentea, (the silver-leaved lime).

All these varieties are of rapid growth. The first two European varieties should prove a good acquisition, for, as in France they blossom in June, it is probable that in this country they would lengthen out the harvest of that delicious honey.

The silver-leaved linden is probably too tender for the cold winters of the northern, eastern and middle States, as its native country is the south of Europe.

While residing in France, the thousands of linden trees which adorn the walks and the roads around the city of Langres, were one of the main resources of our bees. These lindens were mainly of the broad-leaved variety; yet some of the small-leaved lindens intermixed, blooming later, prolonged the aromatic crop for one or two weeks.

Mellextractor.

The honey-emptying machine is named mell-extracteur, in France, from two Latin words. That name, being shorter, would, I think, be more convenient than the term we use.

The mellextractor can be made cheaper, by using a cord winding around a vertical stem, as used in wind-mill toys, instead of the iron cog-wheels.

The Ruchee. (Rooshai.)

In English we have no term to designate the bees together with the combs, brood, &c. The words stand, stock, &c., are too vague, and designate too many things. In France, they call a swarm *essaim*, a hive ruche, (*roosh*), and the inmates of the rushe, ruchee, (rooshai). Why should we not borrow these names from the French dictionary, as the scientists have already borrowed their chemical nomenclature?

The Shallow Hive once more.

Though I see from Mr. J. T. Langstroth's article in the last number of the Bee Journal, that he thinks that all the criticisms directed against the Langstroth hive, come from men *making indiscriminate attacks on anything connected with the Langstroth name, or who will prove all things and hold fast to that which is good*, yet, setting aside these little courtesies, I wish to submit my humble criticism relative to his hive.

The Bee Journal is an arena where all ideas and opinions can meet and struggle. The common sense of the public will, sooner or later, judge without appeal, and decide in favor of the true and the right. A thing valued as good to-day, may be rejected to-morrow, and replaced by something better. All this is very plain, and fair.

The Langstroth hive has received, in the October number, many praises—five, if I do not mistake. Yet I find in the same number, page 69, a few lines from the pen of Mr. C. S. Payne, which destroy those praises, in part, if not altogether.

The fact that the queens do not lay as many eggs in the shallow as in the square hives, agrees with the habits of the queens. Indeed, the queen always begins to lay in the centre of the comb, placing her eggs around those first laid, and so on in a regular circle. The bees give to the young grub the food found in the nearest cells, so that the queen after her turn around the brood, finds the cells ready to receive her eggs; and so on till all the combs are filled with brood. In the shallow frame, the bottom and the top of the comb are soon reached, and the queen is disturbed in her circuit, and loses time in seeking for empty cells.

This is, in my opinion, one of the greatest defects of the Langstroth hive—a defect not compensated by the facility of drawing the frames; that greater facility being more in appearance than real. Indeed, the bees, in order to put more honey in the top of the combs, lengthen the cells so as to hardly leave room for a bee to pass between the two adjoining combs; while the lower part of the combs—that is, three or four inches below, destined for brooding purposes, is always of equal thickness, not

broader than the depth of two worker or drone cells. Now, as the main difficulty resides in drawing the upper four or five inches of the comb out of the hive, it is no matter whether the narrow part is some two or three inches larger. Mr. L. has therefore sacrificed a material advantage to one quite imaginary.

What is the matter.

In August last, one of my neighbors traded with me twenty-five *ruchees* for six Italians. Many of his *ruchees* being weak, I put six of them in place of six hybrids.

The first few days my hybrids seemed discontented. Yet as they were working freely, I thought they would soon become accustomed to their new company. But after five or six days, they began to kill the black bees. In vain did I give them honey, smoke, or scented sugar water; the struggle, restrained through the day, was resumed again at night, and continued till all the black bees in the six hives were killed. Some fifteen days after, I found two black queens dead in front of two of the hives, having evidently been killed by my hybrids.

Can any of the readers of the Bee Journal tell me what was the cause of this massacre?

Wintering Bees.

Many extensive bee-keepers, Messrs. M. Quinby, J. Marvin, A. Grimm, Bidwell Bros., and others, concede that the *ruchees* winter better in some conservatory than on their summer stands.

I advise Mr. Abram Brundage not to put his scheme in execution. Every warm day, his bees, finding the entrance of the hive shut and becoming excited, would gorge themselves with honey, and being prevented from discharging their fæces, would perish. A better way is to put all his hives in a cellar, if possible; or put some straw around the hives, except in front, to give the bees a chance to avail themselves of every sunny day.

Perhaps the article in the November number of last year, on wintering bees, if republished, would benefit some of your new subscribers. I have never lost a colony treated in that way.

Ch. Dadant.

Hamilton, Ill., Oct. 6, 1868.

Consider the wisdom and happiness which are found among a swarm of bees; a pattern to all human societies. There is perfect allegiance, perfect subordination; no time is lost in disputing or questioning; but business goes forward with cheerfulness at every opportunity, and the great object is the common interest. All are armed for defence, and search for work; so that in every member of the community the two characters of the soldier and the laborer are united. If you look to the fruits of this wise economy, you find a store of honey for them to feed upon, when the summer is past and the days of labor are ended.—Jones of Nayland.

[For the American Bee Journal.]

E. Gallup's General Rejoinder.

Mr. Editor:—Some of the readers of the Journal have done as I invited them to do; in other words, they have pitched into Gallup *good* in the October number. Now, I do not care anything about having the last word; but some explanation seems called for, especially where the parties have misunderstood me.

We will begin with friend Price, about those exceptions. To illustrate, I will give this season's feeding, &c. Last fall, I had thirteen swarms of bees, and consequently had thirteen this spring. I have increased them up to thirty-five swarms. As I am commencing in the business here, my object has been increase of stocks, rather than surplus honey. Two of said swarms lost their queens in May, so I had no increase from them. Some time in the month of June, I fed one swarm twice, three tablespoonfuls each time. One swarm that I had a queen in from which I was raising queens, I fed at three different times, two spoonfuls each time of thin sweet, made from common sugar. This I sprinkled on the frames and bees from the spoon. I never used a sprinkler in my life to feed bees. That is the extent of my feeding this summer. Now for the result. I have sold one swarm, which leaves thirty-four; and on the 5th of October I examined every swarm, and found one without sufficient honey; but I likewise found three swarms with too much, so that all I had to do was to exchange combs—the very best way for winter feeding that I ever tried. Our supply of honey was all obtained before the 25th of July, with the exception of six days in September, three days at one time, and three more after an intermission of five days. The swarm that needed feeding was a natural swarm. I had three natural swarms this season—the first for the last ten years. I also found one swarm destitute of a queen, and with very few workers remaining, but as the hive is well filled with honey, I shall keep it for spring feeding, or to put a swarm in. Every one of my swarms, deducting the queenless one, is now in the very best condition for wintering, and on the 20th of July, twenty-six of said swarms were in excellent condition for storing surplus honey; but as the honey harvest was cut off so suddenly, I have only obtained about 200 lbs. in all. In ordinary seasons here, our honey harvest commences about the 20th of July. One more illustration: A Mr Harding, living about half a mile from me (he is an invalid,) took a swarm of bees last fall for one half the increase; and, under my direction, he has increased them to five, all in excellent condition, with comb built all right—all worker comb. They are strong in numbers, and heavy with honey. I asked him last week how much sugar he fed his bees, and his reply was, "Not over one pound." Now, as he was gone from home part of the time, his wife took charge of the bees, and the way she fed them was this: She took a common sauce plate, with a small piece of comb on it, poured the feed in, and set the plate in the vacant side of the hive, for it is only young swarms that need feeding. (You under-

stand that I use a division-board in building up a young swarm.)

In the article that Mr. Price got those exceptions from, I invited people to try my method of managing bees, by strengthening them up early, so that they will not need feeding; at least, that was the intention of the invitation. Now, would Mr. Price have me pay for the right to use a feeder, and for one sample feeder, to feed five cents' worth of feed? That would be odd, sure enough! If any one manages his bees so that they are all, or nearly all, destitute of stores, I call it wrong management; and if you allow your bees to manage themselves, you will have, in such a season as this, any quantity of swarms that will need feeding. Such people need a feeder.

Right here, I will venture to make another of Gallup's assertions, (as our friend Puckett calls them,) and that is, that I never yet saw the season that bees, properly managed, were kept at a loss.

Friend Price, if you will read the article in the August number in this manner, commencing at "Now for my method: Make your swarms early, and strengthen them up and equalise them with brood from your strongest stocks in the breeding season, and while they are gathering honey." (The full stop comes in after *honey*, and not after *stocks*. Then, after the word *honey*, comes,) "How many will try this method, and report through the BEE JOURNAL," &c., you will get at what I intended to say in that article. Any person who manages his bees so that they require much feeding, either in summer or in winter, will be dissatisfied in the long run, and a great many will retire from the business, (especially after such a season as this has been,) and say that bee-keeping does not *pay*.

Mr. H. D. Miner claims that he has been led astray, &c. Now, friend, it is not my intention to lead any one astray; but this I will tell you: *That question requires a long article by itself*, and I shall endeavor to give it to the readers of the BEE JOURNAL this winter, in time for next season's operations. *Time, patience, and perseverance will accomplish all things.*

Mr. H. B. King misquotes and applies a wrong meaning to my article replying to Mr. Alley. Previous to the appearance of Mr. Alley's article in the BEE JOURNAL, I had given a description of the hive which I use in preference to all others that I have ever tried, and also a description of the working of the hive; and it certainly looked like trying to quiz me, to ask what kind of hive I would recommend, after reading those articles. So I answered as I did; and now I am called upon for an explanation, which I give as follows:

In the first place, I make three classes of beginners. One class keeps a few swarms, and lets them stand where they are placed. If they swarm, they hive the swarms perchance, or let them go off to the woods. They never go near them again, summer or winter. Occasionally they consign a swarm to the brimstone pit, after cold weather sets in, so that the bees cannot get out to sting; and that is about the extent of their bee-keeping. To such I say, by all means use hollow basswood for hives.

The second class read some work on bees, or have some neighbor that is making bee-keeping pay. These get up a great excitement, and go into bee-keeping with all the enthusiasm imaginable. They are going to get rich in the business, &c. They hire Gallup, or some other puttyhead, to give them instructions, show them about their bees, &c. He (meaning that puttyhead of a Gallup) gives them all the instructions he possibly can. They pay little attention to what he says. If he tells them what to do, they do just the contrary, and for an excuse, say, "Why, I understood you to tell me so." Some time along in the winter, Gallup sees them, and the first salutation is, "*How come on the bees?* Did you fix them up as I told you to do?" "Oh no; I thought I would take some pains with my bees this winter, so I set them all in a row, and built a good box around them, filled it with straw, and stopped up all the holes in the hives to keep them warm, and to keep them in the hive;" Or if they are in box-hives, and Gallup tells tells them how to winter them in the cellar, by turning them bottom up, all open, they put on the bottom board, contrary to directions. Then, every time any one goes into the cellar with a light, the bees are disturbed, crawl out all over the cellar, and die. In fact they get the dysentery, and all, or nearly all, die off before spring, and the survivors, if any, are worthless for the next season. This class want a frame hive; of course they do. To this class I can recommend a hive of the form of the American. Recollect that I did not recommend the American hive, but only the *form;* or, in other words, a hive tall in proportion to its size. This class usually lose their enthusiasm, and don't talk *bee* the second season; and when they meet Gallup, they act as though they felt ashamed, and Gallup certainly does not blame them. (Friend King, there is really a good reason why the bees did not build worker-comb. If you used the American hive, and if you are good at guessing, you have probably found out the reason, without my telling you.) The above picture is not overdrawn.

Now we come to the third class. They are anxious for information; and if you give them information, they are careful to remember it, and put it in practice. If they meet with a failure, they learn something nevertheless by that failure, and avoid it the next time. This class persevere, and in a very short time demonstrate to their neighbors that bee-keeping is a profitable and pleasant pursuit. It is a pleasure to give instruction to this class. They are generally very sociable, good company, good citizens, an honor to their country, and to the community in which their lot is cast. To this class I can with confidence recommend the Langstroth hive. If you live far enough south, you will be satisfied with the shallow form; but if you live as far north as this, you will be better satisfied with it in the form in which I use it. If you live in Lower Canada, away north of Vermont, where I was born, make it in a still more compact form, and give it two inches more in depth of comb. The shallow form has eight or eight and a half inches depth of comb. I use ten or ten and a half inches. In Lower

Canada, I would recommend twelve inches in depth of comb for out-door wintering.

This third class of bee-keepers will do credit to a hive; or, in other words, they will build up the reputation of a hive. But the first and second class will destroy the reputation of any hive that was ever invented.

Now, reader, to which class do you belong? Remember that I do not place you in either class; your own actions place you where you belong. I will do all in my power to help you into the third class, but it is poor encouragement to help those who will not help themselves.

To explain to Mr. B. Puckett would be the height of folly, for it would only be another of Gallup's *assertions*. It would lack proof, at least to him.

The reader may want to know what became of the swarms that were boxed up, &c. All died, of course—twenty-two in number; and would have died if there had been ten thousand.

OSAGE, IOWA. E. GALLUP.

[For the American Bee Journal.]

The Season of 1868 in Michigan.

The past season here was extremely variable. Most of the month of March was pleasant and warm for the season, with but few days on which the bees did not fly. At the close of the month there was brood in the comb in most colonies, throughout a large part of the cluster of bees. April was less favorable. The month was cold and wet, and at its close there was less brood in many colonies than there was at its commencement. May was warmer again, and the bees commenced gathering pollen early in the month; breeding was extensively resumed, and for a few days, towards the close of the month, some honey was stored. Swarms (Italians) commenced issuing May 24. Most of the hives were now well filled with brood, and drones had made their appearance. According to the rules given by the advocates of artificial swarming, such swarms should now have been made; yet a division of stocks made at this time, or, in fact, at any time during the season, would have proved injurious to many, if not entirely ruinous to some, of the divided colonies. Perhaps enough bees and brood for one good colony might have been taken without injury from four or five good hives, but even such a division would seldom have proved advantageous. The yield of honey ceased with the failure of fruit blossoms. No more honey was stored until near the 15th of June, from white clover. Early in the month, most stocks were nearly destitute of honey, some of them quite so, and the drones in all colonies not queenless were killed. The slaughter was general. Not only were the matured drones destroyed, but drone larvæ were dragged out of the cells, and sacrificed to the wants of the colony. Some young swarms, after having been hived a week, deserted their hives, and returned to the parent stocks, without having made a particle of comb. In some old colonies, breeding entirely ceased. In fact, bees were little better off on the 10th of June than they were at the same date in April. About the 15th of June their condition again improved, and for nearly three weeks honey was stored quite freely. Another failure of honey occurred early in July, after which time very little was collected by the native bees, except for a few days from buckwheat. The Italians have done somewhat better. As a whole, the season has been a poor one. But very few of the young native swarms, or old stocks from which swarms have issued, are supplied with sufficient winter stores. Many of them are nearly destitute. Even the best colonies of Italians, from which no swarms issued, and in which no drones were reared, have stored only about eighty pounds of surplus honey in boxes, and that, too, with all the box-room they could possibly use. Small queen-raising colonies it has been necessary to feed much of the time since July.

I have used a home-made feeder, made in the following manner: Take a piece of two-inch plank, of the same dimensions as the top of the hive; bore a two-inch auger hole nearly through, so that the draw of the auger will go through the plank; tack a small piece of fine-wire cloth over the hole, on the under side; put the feeder on the hive, fill the auger-hole with honey, cover it with the ordinary top board, and the swarm is fed. If the bee-keeper wishes to feed more at a time, enlarge the hole with a chisel and mallet, or make several additional holes. Such a feeder is cheap, quickly made, and the bees can be fed in a moment's time, without attracting outsiders. All can use it, as it is not patented. The wood will absorb some honey, but the quantity will be trifling.

Although the past season has been a poor one, it should in no way discourage bee-keepers or bee-keeping. On the contrary, we should constantly seek to learn some lesson from the past that will be of use in future. The summer of 1862 was very propitious. It was followed by one just the reverse. The same is true of every season extremely favorable for bees and honey that I have ever noticed. The season of 1867 was a *very* good one. I expected that of 1868 would be correspondingly poor, and have not been disappointed. I prevented the issue of swarms in every way practicable. When they issued, I returned them to the parent hive, or joined them to some other stock, and have now very few if any colonies but what are in good condition for winter. I think the early, *universal* slaughter of drones, too, indicated more than a present scarcity of honey, as we were then told. We were advised to make artificial colonies, and manage the apiary the same as though the drones had not been destroyed. We were also told that we could see into the future further than the bees could, and that in all probability we should, by and by, have favorable weather. But the prophecy was not fulfilled, and the result has shown the instinct of the bee to be the nearest right. Bee-keepers who have made swarms artificially, or allowed swarms to issue at pleasure, to any extent, are now complaining that they have too many bees and too little honey. J. H. TOWNLEY.

TOMPKINS, MICH., Oct. 14, 1868.

THE AMERICAN BEE JOURNAL.

WASHINGTON, NOVEMBER, 1868.

☞ The American Bee Journal is now published monthly, in the City of Washington, (D. C.,) at $2 per annum in advance. All communications should be addressed to the Editor, at that place.

☞ We cannot consent to insert, as communications, articles which have previously appeared, as such, in other papers or periodicals; nor can we engage to return manuscripts not used.

We are gratified in being able to present our readers this month with an interesting communication on foulbrood, from the Baroness Von Berlepsch—a lady who takes as warm an interest in all that relates to bees and bee-culture, as her distinguished husband, whose labors and services have long since secured to him a world-wide reputation. As she speaks and writes English familiarly, we hope to be under obligations to her frequently for valuable articles and important information, earlier than such could possibly reach us through the customary channels.

We have not yet received the number of the *Bienenzeitung* containing Dr. Preuss' account of his discovery; but our impression is that the fungi observed by him in foulbroody matter are rather the consequence than the cause of the disease. We have long been of the opinion that this malady originates in the use of pollen that is undergoing putrefacative fermentation from whatever cause. This coincides also with the views of Mr. Lambrecht, from whose pen an excellent article on the subject appeared in several recent numbers of the *Hanover Central-blatt*. Of these we had prepared a translation for our present number, but concluded to postpone its insertion to next month when we received the communication from the Baroness Von Berlepsch. These articles, in connection, we conceive convey more definite information as to the nature, source, and cure of the disease than has hitherto been attainable, and we trust may at last lead to a satisfactory solution of the difficulty which has so long perplexed and dismayed bee-keepers in almost every district of country.

☞ We are indebted to Mr. Dadant, of Hamilton, Illinois, for an article from the pen of Dr. Blumhof, giving an account of the state of bee-culture in Italy.

We frequently see, in the agricultural press, notices of fancied discoveries or new observations respecting bees, the novelty of which is confined to the *non-posted* observer and the uninformed reader. Of this description is an article now "going the rounds," in relation to a peculiar feature in the wings of bees, enabling the insect to form one wing of two by means of certain minute hooks upon the back of each. This peculiar feature is minutely described on page 85 of Unhoch's "*Introduction to a correct knowledge and proper management of Bees*," published at Munich just forty-five years ago, and is exhibited on plate 6, figure 13, of that work. It is also mentioned on page 91, and figured on plate 7, of Notcutt's "*Handbook of the Microscope*," published in London in 1849, thus "the wings of *Hymenoptera*, (bees, wasps, &c.), present a curious structure in a series of minute hooks with which the front edge of the wing is fringed. Their object is to clasp the hinder part of the front wing while flying, so as to increase their strength of flight." Unhoch says:—"The larger wing of a worker bee is 14 lines long and 4½ lines broad. It proceeds from the upper part of the thorax and is so connected, by cartilage, with the smaller wing lying above it that the one cannot move without the other. At about mid-length of the upper margin of each wing are situated nineteen or twenty, and frequently twenty-one minute hooks, finely pointed. By means of these the smaller wing is attached to the larger, to secure a more expanded surface when flying." Thus, we see, old things become new.

Part III of Dr. Packard's "*Guide to the Study of Insects*" has been received. It is handsomely printed, beautifully illustrated with three full-page plates and numerous cuts, and is replete with information about bees, wasps, and other hymenoptera It is a work of special interest and value to all who wish to obtain a correct knowledge of the various classes of insects. Published at Salem, Massachusetts. Price fifty cedts per Part.

We have received from Paris, volumes 10, 11 and 12, of "*L'Apiculteur*," the French Bee Journal, from which we expect to derive some

valuable material occasionally for our pages. We send in return the desired number and volumes of the A. B. J. Will the Editor please favor us with a copy of the *L'Apiculteur* for July, 1868?

☞We have no doubt, judging from an incidental remark by Mr. Gravenhorst, that *the theory* of our correspondent below is the same as that on which Mr. G. proceeds, however they may differ in its practical application.

[For the American Bee Journal.]

To obtain all Worker Comb.

It is announced in the October BEE JOURNAL that Mr. Gravenhorst, of Prussia, has probably succeeded in contriving a plan whereby bees may be compelled, in any hive, and under all circumstances, to build worker comb. That would certainly be an excellent thing, and possibly it may be done. Let us see if we too cannot contrive a plan to effect the same result. Drone comb differs from worker comb in two respects only, viz: in the diameter and in the depth of its cells. The greater depth of drone cells is just as essential as the greater diameter. Worker brood cells are seven-sixteenths of an inch in depth, and drone brood cells are nine-sixteenths of an inch in depth, or, taking cells on both sides of the comb, eighteen-sixteenths or one and one-eighth inches for the thickness of drone comb, and drone comb would be entirely useless, unless it could be built of this thickness. Now, to prevent drone comb from being built, or, in other words, to compel bees to build only worker comb, it is only necessary to *oblige them to build all their combs in spaces too narrow for drone comb.* I think that is the whole secret. Worker comb is fourteen-sixteenths inches in thickness. Then there must be left, on each side of the comb, a space wide enough for the bees and queen to pass, say three sixteenths on each side, making the whole width devoted to each comb, twenty-sixteenths of an inch, or one and and a quarter inches precisely. Now, this precise width could be given to the space occupied by each frame very easily; but to prevent the bees from running over to the next frame, and thus occupying a wider space and running into drone comb, some barrier must be used; but it must be of such a construction that the bees can readily pass from one comb to another, or they will be discontented and probably fail to build any comb at all. This barrier or guide could be made of wood or tin pierced with numerous holes, but best of large-meshed wire cloth, say number 4, or four meshes to the inch. If wire cloth is used great care should be taken to have it perfectly true or straight, so that the space would be of exact width throughout. I shall try this next summer and hope others will. It should be tried only when the honey harvest is abundant, and with large swarms, and it would be best to let them start combs before the guides are inserted.

R. BICKFORD.

SENECA FALLS, N. Y., Oct. 16, 1868.

[For the American Bee Journal.]

Patented and other Hives.

Mr. EDITOR:—I see, on reading the BEE JOURNAL, that a free interchange of thought between bee-keepers in different parts of the country, relative to the best modes of managing the honey bee, is readily allowed in its pages. It is no wonder that so many minds should disagree in relation to bee-culture, for such is the case upon every great point at issue, by whomsoever presented. One succeeds well with an old style of box hive; while not a few are wedded to stationary frames, or close-fitting top-bars. All bear testimony in favor of their respective favorites, through some fancied or real good qualities said to exist in them. Not unlike many of your correspondents, I too have a preference in hives, and that is in favor of *Kidder's Compound Hive*, as possessing more good points combined in one hive, than any other with which I am acquainted. I do not know that I could present them separately, or even collectively, without trespassing upon the space devoted to your regular correspondents. However, I have ventured thus far, trusting to the apparent liberality of your excellent JOURNAL.

In the June number I find an excellent article from the pen of J. Davis, of Charleston, Illinois, under the heading "*Patent Hives and Claims.*" Now, Mr. Davis is a stranger to me; nevertheless he has paid me, and every subscriber of it, a social call through the JOURNAL, for which I am, and every reader of it ought to be, much obliged. His article has the "ring of the true metal" in every line. Yes, gentlemen, if your hives are worth anything, let us know, through the BEE JOURNAL, *what makes them so.* Your circulars reach a few of us. They are no doubt just what they were intended to be, but fall short of the real wants of the bee-keepers. Many of them reveal the character of the writers much better than they do that of their hives. This is not what we want. Present us your "Claims!" Give us a description of your hives, illustrated by good engravings, and give these in the AMERICAN BEE JOURNAL, through which they can reach the practical bee-keepers of the country. If your hives possess real merit, it is there that the bee-keepers will tell one another thereof. If they are worthless (as many are) a self-conceited inventor may profit and perhaps improve his mental capacity, if not his hives, by criticisms and suggestions received from those whom he egotistically believes are his beneficiaries.

DR. S. N. VICKARY.

DARIEN, Sept. 30, 1868.

☞We are under the impression that, in a case tried at Utica a few years ago, before the United States District Court for the Northern District of New York. the *Kidder hive* was decided to be an infringement of the Langstroth patent.

Occasionally feed even your strongest colonies.

[For the American Bee Journal.]

Notes and Remarks.

MR. EDITOR:—I have received the October number of the BEE JOURNAL, and find many interesting subjects treated of in it, to which I would, with your permission, add a few remarks. Before I go further, however, let me thank you for so ably conducting the BEE JOURNAL, and I hope that the time may shortly come when it will make its appearance more frequently, and not, as now, almost "like angels' visits, few and far between."

I see the last number speaks of the New England Fair. I ought to have been there, and should have been, but was detained by a felon, which was very painful, and would have prevented me from attending to my bees properly if I had gone there. Then, again, my honey did not satisfy me this year, as the season failed very early, and I thought, besides, there would be plenty entered for exhibition as good as any I had. Had I supposed there would be so little there, I should have attended with bees, honey, and wax that "might be deemed worthy of a premium."

One of your correspondents asks about the basswood tree, or American linden. I would say that it is perfectly hardy, a rapid grower, furnishing excellent forage, (the best, I think, in these parts,) and is a fine shade tree. Why could not our cities and towns be shaded by them? The tulip tree is the same, with this exception, that I do not find the bees work to any considerable extent on it here, even when dripping with honey. Why this is so I cannot conceive, but such has been my experience. It is quite the contrary with the bass-wood. The bees always resort to it when the weather is favorable, and I have known them to work on it by moonlight.

Italians I am very well pleased with, although they do not work upon red clover; neither are they as peaceable, when handled, as has been stated. They will resent an insult quicker, and to a greater degree, than will black bees; but it is the owner's fault if he is troubled with cross bees of whatever kind, either black or Italian. Keep your bees near the house, be around them often, never strike at them, do not jar the hives, and treat them with moderation, and they will be harmless as flies.

I once thought that toads would eat bees. I do not think so now, and for this reason. One lives, and has for three years, under one of my hives. I have tried him many times, the present season, by offering bees to him on a stick. He would not eat them; but offer him a drone, and presto! it is gone. One day last summer, when the bees were hanging out very strong, I swept them all down on him. He sat as quiet as he could till they crept back, when he hopped away to his hole.

I find that Mr. Langstroth's plan for wintering bees is precisely the same as mine, except that my hives are double; consequently, I do not put any covering on the outside of them. I lost several stocks last winter, till I opened all the entrances nearly as wide as in summer, after which I had no further trouble. I cannot, however, recommend shallow hives. Bees do not do well in them in this locality, or in only few instances. They do not swarm from them as early as from a more compact hive, and there is no advantage derived, except large box room, which I think can be gained in other ways, without a corresponding loss. I think bees kept in that kind of hive are more liable to dysentery than in other forms. The reason I give for this is, dysentery is caused, in some instances at least, by extreme cold, and as bees cannot cluster as compactly in shallow hives, they are affected accordingly.

I do not wish to detract in the least from Mr. Langstroth's hive, for he has originated a valuable improvement, without which bee-keeping would not be what it now is. I used his hive for a long time, and had a deal of trouble from what I have just stated. I wrote to Mr. L. last spring, telling him that in my opinion they were too shallow, and also too large. The past summer's experience has convinced me that I was correct, as far as they were adapted to black bees. For Italians they are not too large, and I am not sure that they are large enough.

I think very much of my Italians, but I do not believe that they will do near as well as has been claimed for them. I have one great trouble, which I consider the whole difficulty in keeping bees, and that is FOULBROOD. Can no way be devised, besides driving them out, to cure it? There was a remedy claimed some time ago by some one in Europe, I think. Why do we hear no more about it?

I will give my last experiment in regard to Italians. It has been claimed that they are longer lived than the blacks. I took two hives this season, one black and the other Italians, and transposed the queens. At the present time there is hardly a black bee in the one in which the Italian queen was put, while the other is largely predominant with Italians yet. I find quite a difference with the different hives about the time the young bees go to work. Some of them get started nearly or quite two weeks earlier than the others. Why is this?

To conclude, this season has been the worst I remember of. My honey yield has been better than I expected, although it is small. Buckwheat finished off very well, as some of my stocks made from twenty-five to forty pounds alone from this crop.

I had nearly forgot to say that I am making me an emptying machine on a different plan, dispensing with the tub. It will, I think, be a cheaper one than has yet been made. If successful, I will give you the result. It will not be patented. WM. A. BARNES.

WEST MERIDEN, Oct. 5, 1868.

TREASURE FOUND.—A gentleman in Westford, Maine, having occasion recently to replace the floor in one of the upper stories of his house, discovered, upon removing the flooring, that a swarm of bees had taken possession of the space beneath, as a depository for their gatherings. He obtained ninety-eight pounds of honey therefrom.

[For the American Bee Journal.]

Bees and Top Boxes.

MR. EDITOR:—The present year has not been a good honey-producing season in Massachusetts, and many bee-keepers have failed to increase their stocks or procure surplus honey. I, however, have doubled my stock, and obtained honey enough for family use.

I use mostly the Langstroth hive, of the pattern made by W. W. Cary, of Coleraine, Massachusetts, having a honey-board with 1½-inch holes, and boxes of a capacity of about fifty pounds. I prepare my boxes with a little empty comb, but I find the bees are *indisposed* to ascend through these holes to the boxes to go to work, and thousands and tens of thousands had rather loaf than work under these circumstances.

I made an experiment, to *test* their disposition in this direction. In July last, there were several colonies of Italians, strong in numbers and rich in stores, all with boxes on the honey-boards, but they did not work in the boxes. I selected the weakest of these for an experiment—a colony which lost its queen early in spring, and ran down very low in numbers before a new queen was raised and it began to replenish its strength. From this stock I expected only that it would repair its losses, and get in trim for winter. I took from it one frame of honey, removed the honey-board, and placed on the frames six boxes without bottoms, which just covered the top of the frames. The honey season was almost over, as it was about the middle of July. The bees ascended to the boxes at once, and soon began to work. They filled three of the six boxes full, and one more nearly full, while seven other colonies by their side stored but one box. This experience proves to my mind that bees do not like to ascend through small holes to the boxes, and will not work under such circumstances with any zeal or in any great numbers.

The common plan of setting the surplus boxes on honey-boards places great obstructions in the way of the workers, and greatly retards their operations. Look at it, and think! The entrance to the boxes is from twelve to twenty inches from the entrance of the hive. A bee comes in, loaded with honey, which it wishes to deposit in a box. The combs hang within half an inch of each other, and the hive is full of bees, which cluster on the combs everywhere, blocking up the passages on every side. This busy worker must crowd and elbow its way slowly along as best it can. By and by, it reaches the box, empties its sack, and turns to make another excursion, but is detained again; jamming through a moving, surging crowd, it at length finds the door, and departs. Here is a tremendous detention, and waste of time and energy. What is wanted is some arrangement by which all workers who will can go to work, forty thousand of them simultaneously. No bee should be detained a moment from its work, either by finding a crowd blocking up its path, or for want of room to work.

This difficulty is mostly overcome in the Eureka hive, by the Rev. Jasper Hazen, of Albany, N. Y. In this hive there are eighteen boxes, with a capacity of one hundred and twenty-five pounds. They form, when all on, a kind of square arch around the central department, and are so made and arranged that the bees can enter freely to the right and left, as they pass into the hive, without going up over the combs; and all the boxes communicate with each other, so that a bee entering a box near the entrance, for instance, can pass into any box of the nest, or it can enter the boxes from any part of the sides or top of the central department.

The *desideratum* to be secured is, free entrance to the honey-boxes and unobstructed passage-way, so that all the workers who will can simultaneously go to work, storing honey in the boxes. The Eureka hive secures this. I have one of these hives, and am satisfied that it secures the bees an opportunity to work in boxes which is not afforded by any other hive with which I am acquainted, if I except, perhaps, one gotten up by Henry Alley, of Wenham, Mass. He has made an improvement on Langstroth's hive, by which he encircles the central department with a nest of twenty-five boxes, and he says that, on the 12th of July last, the bees were at work in all of those twenty-five boxes.

P. R. RUSSELL.

BOLTON, MASS.

[For the American Bee Journal.]

Requeening.

MR. EDITOR:—In the August number of your JOURNAL there is an article from "Köhler" on requeening, some points of which he seemingly does not understand as I do. He says that all young bees raised in the fall, which will not participate in honey gathering, are merely consumers, and therefore unprofitable for that season. I beg to differ with him, and will give the reasons. I think many who have Italianized their stocks have observed the fact that nucleus colonies formed from black bees at the same time that Italian queens are introduced in large colonies, continue to have black bees long after any such can be found in the large colony. Another fact: put an Italian queen in a colony, and make another queenless for a time, and the queenless one will have black bees longer than the one Italianized. This proves that the mortality of bees is brought about by outside labor, and also that the young bees hatched after requeening, take the place of the old ones which engage in field labor. So the question is not whether the young bee will itself have time to gather honey, but whether it will have time to take the place of older ones, which will certainly go to the field if released from indoor labor. This view makes at least a difference of one month in favor of requeening, and I think any one who has had the chance to observe the above facts will agree with my view. Of course, if no queen was at hand, or if the colony was much reduced, I would break it up; but if still numerous, and a queen is at hand, I would just as soon break up any other stout colony that has a queen.

We have had a fine season for bees, and our best stocks are swarming as in spring.

A. G. WILLEY.

MURFREESBORO', TENN., Aug. 31, 1868.

[For the American Bee Journal.]

Wintering Reserve Queens.

In a former number of the BEE JOURNAL, it was asked whether, and how, supernumerary queens in nucleus hives could be wintered. As the time is now at hand when colonies should be arranged for wintering, I will endeavor to reply to the inquiry, in so far as my experience warrants. For many years past I have tried to winter nucleus hives of various sizes, but never with a satisfactory result. After spending much time, and wasting a considerable amount of honey on these small colonies, they would die, sooner or later, according to the number of bees they contained. Last year, as a final effort, I concluded to unite all these small nuclei in a larger hive, just half the size of those I commonly use—that is, nine inches broad by twelve inches deep, and twelve inches high. This small colony was healthy and lively when I brought out my bees from their winter repository in the month of March, containing then still about a quart of bees, but no brood. Two other full colonies were in not much better condition, having only a small quantity of brood. As we had still a frequent recurrence of cold days, and of cold nights especially, I replaced these three weak stocks in the cellar, after having allowed the bees to fly; but two weeks later found the smallest of the three dead. In April, the other two were continually growing weaker, till finally I had to break them up, in order to save the queens, which were pure Italians. I have always found this to be the condition of all weak colonies. After bringing them through the winter, with great trouble and no small sacrifice of honey, they would commonly swarm out and decamp in the spring; and if I attempted to reinforce them with brood or bees taken from some strong stock, the latter was much more injured by the operation than the former was benefitted, for in the early spring no colony can well be too strong. Hence I have invariably found it most advantageous to unite all the weak stocks with stronger ones in the fall, and have often repeated this in the cellar, towards spring, on finding that others have become greatly enfeebled.

After the experience I have thus had, I cannot but advise beginners in no case to undertake to winter weak colonies, as the winters, at least in this latitude, are too greatly protracted, and all weak colonies are sure to lose twice as many bees, in proportion, as strong ones, and are not strengthened through the winter, like the latter, by accessions from maturing brood.

As regards the ventilation of hives, I will only remark that I aim in this, as in all besides, to maintain a judicious medium. Four one-inch holes in the cover or honey-board have always been found sufficient for my strongest stocks. For the weaker, I open only two holes, on the side most distant from the clustered bees. Covering these holes with wire gauze is not only unnecessary, but may be injurious, as a single bee endeavoring to work its way out there may disturb and excite the whole colony.

The main matter is, that the cellar or clamp in which stocks are deposited be dry and dark, and that the hives are carried there only in dry weather. If the place be a little too cold, it will do less harm than if too warm.

Disposed of in this manner, I carried my bees—sixty-four colonies—successfully through the last winter, not losing one while they remained there, nor did the combs suffer from dampness and mould. Afterwards, indeed, I lost several colonies from various causes, but even of these the comb and the honey they still contained remained available for early spring swarms. I propose to winter all my stocks, comprising one hundred choice Italian colonies, in my detached *clamp cellar* the coming season, and will report the result in the spring.

Unfavorable as the season was on the whole, I doubled the number of stocks in my apiary, and have obtained, besides, one thousand pounds of honey, and about fifty pounds of wax. The last five years have not been as propitious to bee-culture here as the previous ones, and all those who did not keep themselves well posted during this period have fallen back, instead of advancing; some, indeed, have gradually retrograded till they have lost their entire stock.

W. WOLFF.

JEFFERSON, WIS.

[For the American Bee Journal.]

Bee-Feeder.

The following is a description of a bee-feeder of which I claim to be the inventor. It is simply a wooden box, open at bottom and top. A piece of cotton cloth is tacked over the bottom edge of the box, and it is then treated to a coat of pitch all around the edge of the box, over the muslin. This sticks it fast, and makes it perfectly waterproof. A little of the pitch should be put in the corners of the box. A strip should be tacked on to two opposite sides of the box, so as to raise it high enough to keep the bees from waxing or gumming the cloth. It may be covered with a thin piece of board.

The pitch is made by melting rosin and beeswax together; the large portion should be rosin. This pitch will be found very useful to bee-raisers, particularly for fastening combs in movable frames, or for sticking pieces of comb anywhere you wish. It is used hot, with a small painter's brush.

The cloth should be wetted before the feed is poured into the box.

Although I have no doubt that this is the best bee-feeder that ever has been or ever will be invented, I do not intend to take out a patent on it, and wish this published to prevent any other person from doing so. W. T. SINGLETON.

SPRINGFIELD, ILL.

An individual may be so full of the virus of one or both of the two insects, the bee and the mosquito, that the sting of the one and the proboscis of the other will produce neither irritating nor harmful effects.—B. F. J.

[For the American Bee Journal.]

Two Queens in one Hive.

The singularity here was, as will be seen, that one was a fertile mother and the other a young queen, supposed to be about three days old.

In May, 1867, I bought, of Rev. L. L. Langstroth, a twenty dollar Italian queen to propogate from. Some time in July, 1868, there being quite a demand for queens, I removed the old mother queen from the large hive, to procure cells.

After the cells were capped, I removed them to small nucleus hives, and restored the queen to that from which she was removed. In three days, after these cells were hatched, I had occasion to go to the old colony, to procure eggs from the old mother queen. On opening the hive, I saw a young unfertilized queen on the first comb I lifted out; of course I understood how she came there—a cell had been overlooked.

I now supposed my old queen was killed, and commenced lifting out the combs with much anxiety; but, on the third comb taken out, I found the old queen depositing eggs as usual. I then captured the young queen, and introduced her where I intended to put the eggs.

This is the second time I found an old queen remaining with the colony, after a young queen had hatched. But I think, as a general rule, the old queen is on the decline and refuses to leave the hive, and is barely tolerated in her old home.

A. SALISBURY.

CAMARGO, ILLS.

[For the American Bee Journal.]

Loss of Queens.

I was unfortunate enough this last summer to lose a queen that I procured from Mr. Langstroth one year ago. I caught her about noon, put her in a cage for the purpose of introducing her into a hive of common bees. At the same time, I caged the common queen, and put them both on a shelf in the house. On examining them in the evening, I found them both dead. There were a few large black ants in and about the cages. The queens had nothing to eat for four or five hours. Now, I wish to ask, did they starve, or did the ants kill them? Or what do you think was the trouble?

J. W. MAYFIELD.

GOSHEN, IND., Sept. 29, 1868.

☞We suppose the queens died of starvation, as we never knew ants to attack living bees. Perhaps a kind of *nostalgia* too had something to do with it.

At the swarming season, if the weather be warm and moist or wet, thus favoring the production of brood, bees are strongly inclined to build drone combs, often making a sudden transition from worker to drone cells.

[For the American Bee Journal.]

Is Puff Ball Smoke Injurious to Bees?

QUESTION ANSWERED.

All narcotic substances affect bees more or less injuriously, or even fatally, according to the quantity to the operation of which they are exposed. Bees are readily stupefied, and may even be killed, if long subjected to the effects of tobacco smoke. When fumigated to stupefaction with puff ball smoke, a considerable number of the bees operated on are invariably killed, as I have discovered on numerous trials. It is almost as bad as exposing them to the fumes of burning brimstone, and I cannot, therefore, recommend the use of it.

W. WOLFF.

JEFFERSON, WIS.

[For the American Bee Journal.]

Question to Novice.

You inform us that you take the honey out of the combs as soon as gathered, or at least every five or six days, and express your regret that you did not take it out more frequently by means of the machine.

Please inform us whether this very thin fresh-gathered honey did not speedily turn sour? My opinion is that the honey has to be condensed in the cells by the bees, and that as soon as it is sufficiently ripe or thickened they will seal it up. Is it not the proper time to remove it from the comb, just when the bees begin to seal it up?

W. WOLFF.

JEFFERSON, WIS.

Bee-Glue or Propolis.

In the immense forests of Poland and Russia, where the bees select their own habitations in hollow trunks of trees, the bee-glue is deposited in much larger pieces, and of a superior flavor, to that which is obtained in countries where these insects are raised by the aid of art. The inhabitants of the former generally use this bee-glue as a vulnerary application, to promote the healing of fresh wounds. Dr. James, in his "*Medicinal Dictionary*" praises the bee-glue as being gently heating, abstergent, and attracting. It softens indurated parts, alleviates pain, and induces cicatrices on ulcers.—*Maillet's Travels.*

If a swarm by bad weather be checked and hindered in their work the first week, they will seldom work courageously all the summer following.—PURCHAS.

In the busy summer season, when there is plenty of honey to gather, few of the worker bees get to be more than six or eight weeks old.

Bees rarely deposit pollen in drone cells.